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Title:	Discussion and Request to set a Public Hearing on Land Use Ordinance Amendments Related to Stormwater Management PURPOSE: The purpose of this agenda item is for the Board of Aldermen to discuss options related to post-development rate of discharge stormwater requirements and consider setting a public hearing on an ordinance amending stormwater volume control provisions.		
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Attachments:	1. Attachment A - Resolution, 2. Attachment B - NOAA Atlas 14 Carrboro, 3. Attachment C - Lopez-Cantu and Samaras , Environ. Res. Lett. 13 (2018) 074006, 4. Attachment D - LUO Amendment - Volume Control 4-11-2019, 5. Attachment E - Section 15-263 Stormwater Volume		

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TITLE:

Discussion and Request to set a Public Hearing on Land Use Ordinance Amendments Related to Stormwater Management

PURPOSE: The purpose of this agenda item is for the Board of Aldermen to discuss options related to post-development rate of discharge stormwater requirements and consider setting a public hearing on an ordinance amending stormwater volume control provisions.

DEPARTMENT: Planning

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INFORMATION: This agenda item addresses two aspects of stormwater management- rate and volume of post-development controls. The Board of Aldermen's request for adjustments to design storm specifications followed discussions of recent developments and community concerns that existing stormwater requirements may not sufficiently address risks associated with uncertain climate and weather patterns and related variability in rainfall. Specific discussions and directions have involved changing the design storm for stormwater quantity regulations from current (i.e. the 1-,2-, 5-, 10-, and 25-year, 24-hour storm event) to include the 50- and 100-year storm event. In the midst of several other projects, staff has been gathering information to understand Carrboro's current regulations in the context of other local governments in North Carolina and elsewhere in and any research that might be useful in informing the Town's selection of updated stormwater requirements. This is a work in progress; to date it has revealed that the Town's use of the 25-year storm event is not used in all locales. This is sometimes countered by a provision found elsewhere to require a "10-percent analysis" in addition to the more common, 10-year design storm standard. In addition to the consideration of expanding stormwater requirements to include storms of lesser probability, staff has also been considering changes to the

duration of the storm. One option that is used elsewhere is to require analysis of the 6-hour, 12-hour, and 24-hour storms outright or in relation to the size of the watershed where a development is occurring. Design storm parameters are used for peak flow and runoff volume estimates and for runoff routing. The implications of changing the selected storm is that less frequent, higher-volume storm events will likely increase pipe sizes, the size, location, and number of inlets, the sizes of stormwater ponds and outlet structures. The effect on development projects will vary with their site conditions, but increases in the features noted has associated increased costs. As with the changes in rainfall amounts themselves, the increases are non-linear (see *Attachment B* - NOAA Circular 14/applicable to Carrboro). Some examples of active research projects or recent reports are listed below.

New York City's Department of Environment report, "Innovative & Integrated Stormwater Management"

[<http://www.waterrf.org/resources/Lists/PublicSpecialReports/Attachments/18/NYC_Stormwater_Report.pdf>](http://www.waterrf.org/resources/Lists/PublicSpecialReports/Attachments/18/NYC_Stormwater_Report.pdf)

University of Minnesota-led evaluation of the potential impacts to stormwater infrastructure due to climate change

[<https://www.cwp.org/climate-change-stormwater-management-capacity-for-community-adaptation-planning/>](https://www.cwp.org/climate-change-stormwater-management-capacity-for-community-adaptation-planning/)

A recent study of stormwater engineering standards throughout the nation provides some guidance on the resilience of states based on changes in rainfall and past stormwater management requirements (see *Attachment C* - Lopez-Cantu and Samaras, Environ. Res. Lett. 13 (2018) 074006).

A draft ordinance offering such a change has not yet been prepared as the information gathered to date suggests we have not identified the approach that will best respond to concerns about climate change's effects on the stormwater systems in Carrboro. It is clear that many entities are considering - and struggling somewhat - with establishing new standards. Additional requirements will in most cases cost more than the regulations currently in place, which will raise questions about the appropriate balance between regulation and growth/development. Stormwater management is site-specific, and increased requirements will especially affect infill development, where more intensively managed systems, such as sand filters and underground detention, will be needed to meet higher design storm requirements. A couple of options are offered for the Board's consideration: 1) Continue with current ordinance development focusing on changes to design storm; 2) Direct staff to work with the Stormwater Advisory Commission to review conditions, current requirements, and literature and consider design storm changes with other actions; 3) Direct staff to examine peak flow and other stormwater management provisions and update comprehensively.

For the second topic, a draft ordinance has been prepared to revise the Town's regulations to respond to changes in state agency titles and other terms have been changes. Specifically the establishment of two agencies, DEQ and DEMLR, replacing the role of NCDENR, and the renaming of the BMP manual to the SCM manual. Rather than updating to these new titles, however, the draft ordinance seeks to avoid having to do future amendments because of state administrative reorganizations or changes to the name of software altogether by referencing the state's agencies and actions/tools more generically (*Attachment D*).

The Board of Aldermen must receive public comments before adopting amendments to the Land Use Ordinance. Orange County and Planning Board review are also needed.

FISCAL & STAFF IMPACT: Public hearings involve staff and public notice costs associated with advisory board and Board of Aldermen review.

RECOMMENDATION: Staff recommends that the Board of Aldermen provide direction regarding stormwater quantity/peak flow discharge rates and consider adoption of the attached resolution setting a public hearing date of May 28, and referring the proposed amendment to Orange County and the Planning Board and Stormwater Advisory Commission.